

thing or two, particularly those fine scratching places found last year, but usually runs with her brood a longer time, simply because she has less call to lay.

When patience and perseverance have done their best work on our birds, some may still "loaf around," as it were, idle and indifferent, yielding no eggs at all, neither large nor small. How shall we certainly know our paying hens? A good layer is always a well, lively hen, and a well, lively hen is usually a layer. The brightest combed, most self-helpful, independent, happy fowl, the strongest scratcher and loudest singer, usually produces eggs in proportion. Her musical lay seems particularly connected with that other kind of lay. Many hens lay characteristic eggs, that is, each one's eggs have a shape differing slightly from others. Frequent visits to poultry quarters will connect the hen, her nest and her product. By watching and catching biddy in the act, our best layers can be determined, and their eggs set to produce a laying strain.

The gathering and care of eggs, if there are any to gather, demand considerable attention. Several layers will successively choose one favorite nest, thereby continually reheating the first egg laid therein that day, which egg may also be the very one left over night, if artificial nest eggs are not used. It is said a fertile egg starts into life when raised to a temperature of 92°. Should this process begin and stop a few times, the embryo of the chick dies and decay follows. Some, therefore, recommend non-fertilization. But one year I sacrificed every chancier, and hawks almost immediately discovered my feathered watchmen and detectives were gone. They could, for once, surprise and taste spring chicken. My uneasy hens also seemed to miss their advisers and peacemakers. The New York Experimental Station once decided that fertilized eggs keep as long as unfertilized, provided the former are never started into life. Gather your eggs often, whenever at poultry quarters bringing in what there are, then keep in a place of suitable temperature, and neither frozen eggs in winter, nor "chicks on the half shell" in summer, will be your reward. No egg testers will be required, and your fowls, like mine, can hardly get a chance to learn the vice of egg-eating, especially if, in addition, every egg-shell thrown out is first crushed out of all likeness to its former self. Any nest which shows traces of a breakage better be temporarily closed, and beginners will not know they can go elsewhere to do their wicked deed.

APIARY.

The Apiary.

CONDUCTED BY MR. ALLEN PRINGLE.

Will you please give a beginner instructions in the ADVOCATE how to get section-box honey. Last year was my first with patent hives and sections, but the bees would not work much in the sections for me. How would you recommend me to manage them?

WELLINGTON CO., ONT.

ANSWER.—It is not always that the old heads or experts can get the bees to work in the sections, let alone the novice. There may be various reasons why the bees do not see fit to accede to the wishes of the bee-keeper and respond to his efforts to get them into the sections and to work there.

In the first place, if they have plenty of room for storing the honey elsewhere, they are not apt to go into the sections to store it. When they begin to get crowded below they go up into the sections. In the second place, to get section honey freely and of good quality, the flowers must be yielding liberally—in other words, there must be a good "flow". In the third place, if the brood chamber is unduly large, with a large quantity of honey stored in it, although it may be full of honey and brood and the bees crowded for room, they are not so apt to begin work above as though the honey were scarce below, though the crowded state may be the same in both cases. This is quite reasonable as well as natural, for you could hardly expect bees, any more than bipeds, to unduly exert themselves to get more in the presence of abundance on hand.

Of course, some bees will do it, the same as some bipeds are never satisfied no matter how much they have. The bee is an animal of both instinct and reason, and bees differ from each other like people, though perhaps not so much. At any rate some of them can hardly be bribed, bamboozled, cajoled or coerced into the sections. The way I manage such is, I let them stay out, and make them work in another fashion more to their liking; you must treat a mule as a mule. To sum up, the how to do it is this: Keep only good queens; have a brood chamber of moderate size, preventing the undue accumulation of honey in it by using the extractor on it if necessary, and don't expect the bees to enter into and fill sections when they are unable to get honey freely in the fields. And if you find they will not go for the sections with all these conditions favorable, you may put it down to constitutional "cussedness," and act accordingly. Take the sections off and put on a top story with frames of empty comb (if you have them) for extracted honey, and keep the extractor going on them to spite them.

Transferring.

In the directions which Mr. Pringle gives to a subscriber in relation to transferring his bees, in issue of 15th of May, he recommends him not to do so until twenty-one or twenty-two days after they have swarmed. It is true that all the young workers will have hatched out by that time, but a number of young queens will also have hatched, which, in all probability, will have led off another swarm or two before then, with considerable loss to the owner if he is not very vigilant. Better transfer immediately after they swarm, cutting out all queen cells but one; then, having but one queen, they cannot swarm and are not likely to for balance of season, which is what "Subscriber" wants if his object is to obtain surplus honey. But there are other objections to the method recommended by Mr. Pringle. Bees do not swarm until the comb is well filled with honey, and honey presents a much greater obstacle to transferring than brood. Unless colonies are extra strong, the spring favorable, and the fruit blossom yields a liberal supply of honey, they will not swarm before the white clover season arrives, in the middle or latter part of June; add twenty-one days, and this will carry us well into July, into the most busy part of the honey season,—at the very time when the comb is loaded with honey, for as fast as the brood hatches, the bees fill the cells with honey, so that oftentimes the young queen has scarcely room to lay an egg. Besides, if "Subscriber" invests in improved hives, why should he not have the benefit of them for the whole season? When is the best time to transfer? 1st. It is desirable that it should be done before the honey season commences, so that the bees may be ready to store the honey where it is wanted. 2nd. At that time when the comb contains the least honey. 3rd. When the weather is so warm that the brood will not get chilled during the operation. 4th. It is desirable, also, that they should be gathering some honey at the time, so that they may not be disposed to rob, otherwise the work will have to be done under a bee tent, or in some close building that will exclude the bees. They work more energetically, too, in fastening the comb in the frames when there is honey coming in. Now, when are these conditions to be found? Just when the apple trees are commencing to blossom, and if not attended to then, the next most favorable season will be when the bees are commencing to gather from the white clover.

G. W. FERGUSON.

DAIRY.

The Importance of Attention to the Little Things in Dairying.

BY J. W. WHEATON, SECRETARY WESTERN DAIRY-MEN'S ASSOCIATION.

The most successful man in my department of work is the man who looks well after the little things connected with his business. That old proverb: "Look after the pence and the pounds will take care of themselves," is a very apt one, and its logic will apply to nearly every variety of trade and business. Many men pride themselves on the comprehensive knowledge they have of their particular vocation, and theorize as to the best methods of doing certain lines of work, giving their attention to general principles more than to details, and afterwards wonder why the work has not been successful and returned a handsome profit. Many farmers neglect too often the little leaks on the farm and the waste places where the profits are gradually oozing out, and then complain of hard times and the unprofitableness of the business of farming at the present time.

To no other business will this golden rule apply so well as to the business of dairying. The man who provides himself with a dozen good cows, and feels that he is a successful dairyman because he has the machine by which to manufacture milk, will find that his venture will be an utter failure, unless he gives particular attention to the little details in connection with the handling of his cows and the proper care of the milk.

As the subject of dairying is a very wide one, we will confine ourselves in this article to some of the details that the patron should give particular attention to in furnishing milk to a cheese factory.

In the early history of cheesemaking in Canada, there was not much attention given to the care of milk. In fact, the cheesemaker would not return milk received at the factory unless it were thick or very sour. The quality of cheese required to meet the wants of the consumer in Great Britain was not so high as at the present time. Inferior goods could be disposed of quite readily at fairly remunerative prices, and hence the maker was not so particular about the quality of the milk received by him. But that day has gone by, and it is no longer profitable, nor is it possible, to dispose of inferior goods in the British markets, except at a sacrifice, and consequently the manufacturer must turn out a first-class article if he expects to get a first-class price, and in order to do so he must have a pure, sweet quality of milk. A great many patrons complain because their cheese maker is so particular about the flavor of the milk, and because it is returned when it has only a foul odor and is not thick or sour, and a few consider him not so capable as the maker of twenty years ago because he cannot make a first-class article of cheese out of an impure quality of milk. This has never been done, and cannot be done at the present time, for unless a

cheesemaker has good, pure milk, he cannot be expected to manufacture a first-class article of cheese out of it.

We have a fairly comprehensive knowledge of the main principles of cheesemaking, and the only way to still further improve the quality of our Canadian cheese is to give particular attention to the little details both in connection with the process of making, and also in the handling of the cow and the proper care of the milk before it reaches the factory. The little things connected with the care of milk and the handling of the cows are entirely under the control of the patron of the cheese factory, and it is his duty to attend to these little details, and to see that only good, pure milk is sent from his farm to his cheese maker.

The first essential in successful dairying is that the cow should have an ample supply of good, succulent food, an abundance of pure, fresh water, and all the salt she cares to lick. Then it will always pay to treat the cow as kindly as possible. There is no animal kept on the farm that will repay for kind treatment and best of care as well as the cow. A first-class milch cow has a very fine and delicate nervous system, and if she is abused or handled roughly, this abuse and rough treatment will excite her nervous system and will react on the organs engaged in the elaboration of milk, thereby lessening the quantity and injuring the quality of the milk that she will give. Ex-Gov. Hoard tells of a visit he made some time ago to one of the Southern States to see a celebrated butter cow. When he arrived at the place and enquired if he might see this valuable cow, he was greatly disappointed on being told by the proprietor that he would not take \$1000 and allow a stranger to look upon that cow just then, as she was undergoing an important butter-producing test. The very fact of a stranger looking upon that cow at that time would excite her nerves and react upon the production of milk. This may be considered by many as an extreme case, but nevertheless it is the experience of a man who thoroughly understood the cow and knew what conditions and treatment were calculated to enable her to produce to her utmost capacity. Not long ago, in conversation with a lady in one of the leading dairy districts of Western Ontario, she told me that whenever she supervised the milking, their herd of twenty cows would always give twenty pounds more milk than when her husband looked after the milking. The lady would not allow any talking or any noise in the milking yard when the cows were being milked, while her husband was not so particular about it, and hence the increase in quantity of milk by giving attention to one of these little things.

One of the chief difficulties we have to contend with in our Canadian cheese is bad flavor. In comparison with the best British cheese, it lacks the fine, creamy, rosy flavor that the British cheese has. Now, the best way to overcome this difficulty is to take the best possible care of the milk, and supply only a pure article to the cheesemaker. There is no substance so susceptible to all foul odors and bad flavors as milk is. It seems to be the nature of milk to take in these impurities, if they are around, and milk seems to be a very suitable medium for the growth and development of the varied forms of bacteria that are constantly in the atmosphere, and consequently it is the duty of every patron to protect the milk and prevent these germs from developing in it. It has been found by actual experiment that nearly all the bad flavors and bad odors found in milk get into it after the milk has been taken from the cow. Milk has been taken from cows under such conditions, by sterilizing the milking utensils and preventing the air from coming in contact with it, so that it could be kept perfectly sweet for any length of time. Now, it is not possible for the dairyman to prevent the milk from coming in contact with the atmosphere, but, by giving particular attention to the following, he may be able to prevent so many of these germs from getting into the milk, and to overcome the evil results connected with them:—

1. See that the milking utensils, pails, etc., are in a perfectly clean condition, and that the seams and crevices are not harboring any of these foul germs because of not being properly cleansed and scalded.

2. Observe the strictest cleanliness when milking, and do not allow the dust and dirt from the udder to fall into the milk, but have the udder brushed or washed before beginning to milk. Cows can be milked in a more cleanly manner with dry hands than with wet ones, and just as easily when the habit is formed.

3. Have the same person milk the same cow as much as possible, and milk the cows at the same hour every day. They will become accustomed to this regularity, and will give their milk more readily and will give more of it.

4. Have the milking done in a place where the atmosphere is pure, and do not allow any cesspools, hog troughs, whey tanks, etc., near the milking yard, as the fresh, warm milk will quickly take in the impurities from them if they are around. In many of our factories, during the spring and fall, the cheesemakers have to contend with a disagreeable stable odor in the milk, due to the cows being milked in badly ventilated stables. Now I don't want to be considered as condemning the milking of cows in the stable, for I believe if the stable is properly ventilated and the atmosphere is pure, it is the proper place in which to milk cows, but let the stables be well ventilated and the atmosphere pure.